CHARGEBACK SYSTEMS

INPUT

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Information Services Program–(ISP)

Chargeback Systems

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Abstract

There is a great deal of debate about the "best" way to charge for usage of Information System resources. Every possible approach seems to have been tried somewhere, and every approach has both ardent supporters and vehement critics.

No single approach is best for all companies. Before implementing any form of chargeback system, an organization should develop a clear set of objectives for the system. Particular emphasis should be placed on the interface between chargeback and other administrative processes such as strategic planning, equipment/facilities planning, capital budgeting, and accounting. Once this framework has been established, the organization can develop a chargeback system which provides useful information for management and is acceptable to those being charged.

This report presents a model for analyzing chargeback system alternatives, uses this model to describe how a number of organizations have implemented chargeback systems, and provides a set of recommendations for chargeback system design.

The report contains 52 pages, including 17 exhibits.

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Introduction

A Background

As companies face increasing cost pressures, there is growing emphasis on directly charging users for Information System (IS) resources instead of burying these costs in overhead or administrative pools. Dedicated resources have become less common as technical advances in hardware and software have allowed the sharing of resources among multiple users:

- Multiprogramming/timesharing.
- Local area networks.
- Data compression/multiplexing.
- Telecommunications network routing/switching.
- Data base management systems.

The process of allocating costs for shared resources is commonly called "chargeback," and the systems used are called "Chargeback Systems." A wide variety of packaged software is available for implementing portions of a chargeback system. However, most of these packages provide detailed, hardware-oriented data which has little meaning or value to the business manager who is concerned with order backlogs, product profitability, etc.

No single packaged software system is suitable for all types of IS resources (central site hardware, data telecommunications, development programming, etc.), and the differences between resource types makes it difficult to integrate several packages into a single, comprehensive system. Organizations are, therefore, left with the problem of developing their own custom systems for chargeback of IS resources.

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B

Purpose and Scope

This report provides IS and user management with a framework or model for specifying the requirements of a chargeback system and evaluating proposed implementations of such a system.

The first step in this evaluation is to establish the objectives to be served by the system. This means asking how the output will be utilized and how the system relates to the firm's other administrative processes. The next step is to determine the chargeback system parameters that will best support the desired objectives. A list of major parameters is provided, together with a list of available choices for each parameter. The report then uses the concepts of this model to describe how a number of organizations have implemented chargeback systems.

Also included are a number of comments by user organizations which have lived with good and bad chargeback systems. Finally, the report provides INPUT's recommendations for design of chargeback systems.

This report does not attempt to survey the software packages available for implementing portions of a chargeback system. Nor does the report survey the large amount of conflicting literature on this topic. Most of the available literature is narrowly focused on specific resources, such as timesharing facilities, telephones, etc., and also fails to recognize that any chargeback process or system must be evaluated within a broader organizational context.

This report also does not attempt to specify a design for the one "best" chargeback system. The most significant point made by this report is that each firm has different characteristics and chargeback requirements, and the best system for any organization is probably unique in several important ways.

C

Methodology

This report is the result of in-depth interviews with senior IS executives at selected firms. The firms we interviewed were among the largest in their respective industries, and IS resources were a significant strategic resource to all of them. The list of firms was chosen to provide a wide variety of industries, organization structures, and levels of maturity and sophistication in the IS organization.

Based on preliminary interviews with several firms, INPUT developed the Chargeback System Model used in this report. A detailed questionnaire was then developed and mailed out to the executives who agreed to participate in the study. After these executives had reviewed the questionnaire, INPUT conducted telephone interviews with them, using the questionnaire as a guide. Most of the interviews lasted at least one hour.

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Altogether there were 12 firms interviewed. While this is not a large or diversified enough sample to use in making statistical inferences, INPUT feels that the insights derived from these interviews have broad general applicability across all firms in which IS is a significant resource.

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II

Executive Summary

This Executive Summary is designed to help the reader quickly review the conclusions and recommendations that are detailed in this report. Each key point is summarized in an exhibit, with accompanying explanations.

Most firms have some form of chargeback system for IS resources, and many feel that their present systems are inadequate. In most cases, the problems can be traced to a lack of clear management objectives and systems that are resource-oriented rather than user output-oriented.

The Executive Summary includes a list of "The 10 Commandments of IS Chargeback." But all of these commandments boil down to one key point: The successful chargeback system must have a clear set of objectives with demonstrated top management support.

A

Chargeback Systems and Other Administrative Processes

As shown in Exhibit II-1, one of the most common problems surrounding any discussion of IS chargeback systems is that they tend to be viewed in isolation from the rest of the organization's systems and processes. There are two key factors to consider in assessing how an IS chargeback system relates to the rest of the organization:

- What systems or processes provide input to or receive output from the chargeback system.
- How does the IS chargeback system compare to the other internal chargeback mechanisms used by the company.

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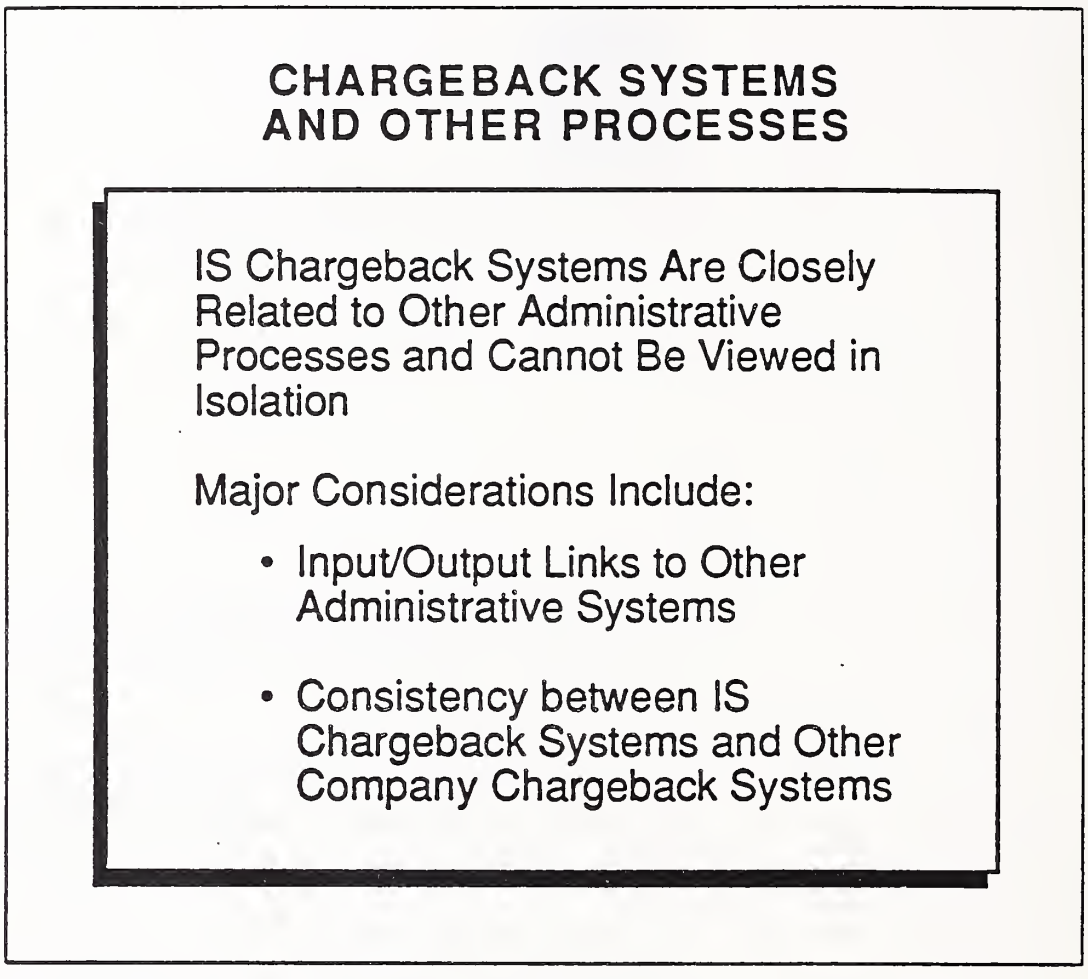
EXHIBIT II-1


CHARGEBACK SYSTEMS
AND OTHER PROCESSES
IS Chargeback Systems Are Closely Related to Other Administrative Processes and Cannot Be Viewed in Isolation
Major Considerations Include:
• Input/Output Links to Other Administrative Systems
• Consistency between IS Chargeback Systems and Other Company Chargeback Systems

Internal systems/processes which commonly provide input to IS chargeback systems include:

- Strategic planning.
- Equipment/facilities planning.
- Capital budgeting.
- Operational budgeting.

Chargeback system output usually goes to one or more accounting systems, which provide information to the user. In addition, there is often a feedback from the accounting system output to the previously mentioned planning and budgeting processes.

If an IS chargeback system is to be successful and well accepted, it is important that it operates with the same basic objectives, policies, and process as the chargeback systems used for other services (e.g., graphic arts, printing, legal, transportation).

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B

Importance of Chargeback Systems Objectives

It is critical that management establish and communicate specific objectives for all chargeback systems, but especially so for IS. Lacking clear and well-understood objectives, it is impossible to establish consistent policies and processes for chargeback. Lack of consistency is perhaps the most frequent complaint about the way chargeback systems are implemented:

- Between the way different resources are billed.
- Between the way different users (departments/divisions) are billed.
- Between corporate budgeting/accounting conventions and the rules of specific chargeback systems.

It is also impossible for management to evaluate the success of a chargeback system or respond to criticisms about such systems without specific criteria for evaluation. Well-communicated system objectives provide these criteria. There are three major categories of objectives associated with chargeback systems:

- Providing information.
- Motivating behavior.
- Providing accounting data.

The most critical objectives are those associated with management responsibility accounting. Where IS charges form a significant part of a manager's costs, and the manager is evaluated on expense control, there is great opportunity for criticism and dissent.

Exhibit II-2 outlines these points.

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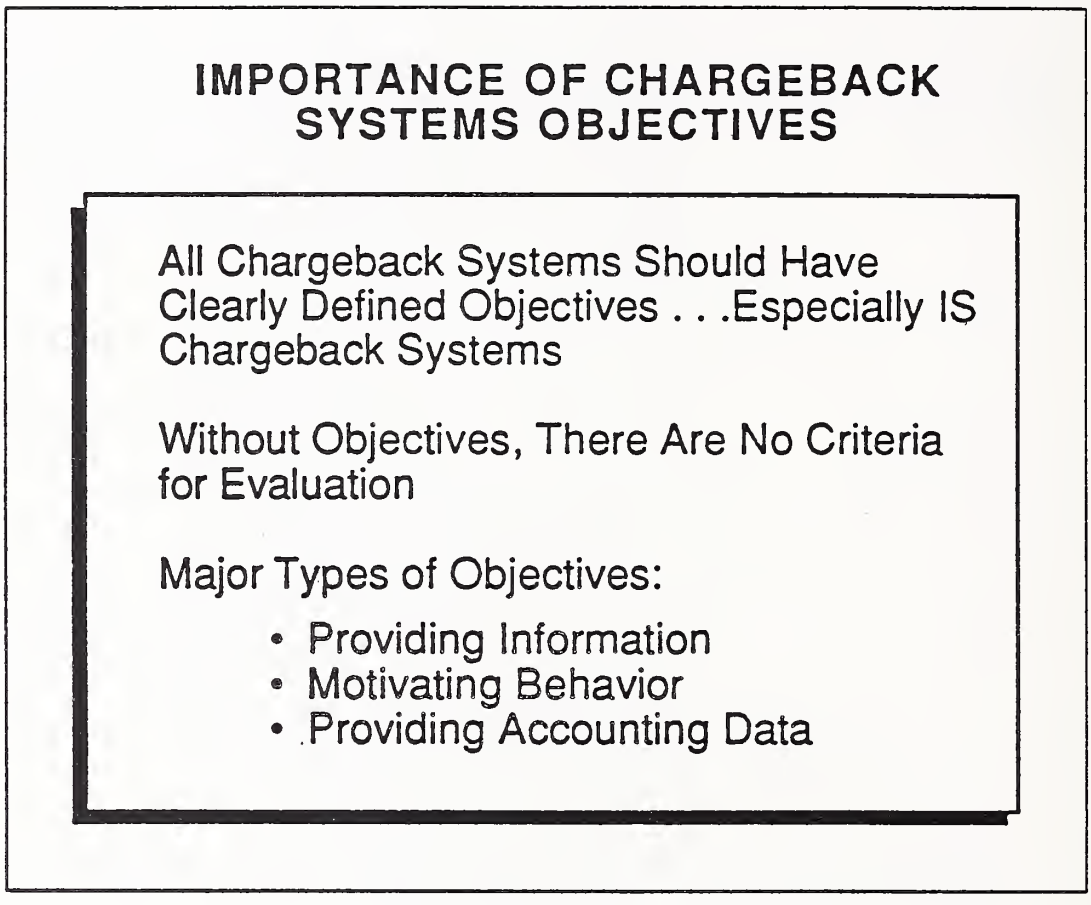
EXHIBIT II-2


IMPORTANCE OF CHARGEBACK SYSTEMS OBJECTIVES
All Chargeback Systems Should Have Clearly Defined Objectives . . .Especially IS Chargeback Systems
Without Objectives, There Are No Criteria for Evaluation
Major Types of Objectives:
• Providing Information
• Motivating Behavior
• Providing Accounting Data

C

Industry/Organization Structure

The design of an IS chargeback system is strongly influenced by:

- The industry(ies) in which the firm operates.
- The firm's organizational structure.
- The manner in which the firm's IS functions are integrated with its basic business.

Some industries, for example insurance and aerospace, are subject to governmental regulations regarding internal cost allocations, product pricing, etc. All chargeback systems must satisfy these regulatory criteria.

Complex organizational structures require complex chargeback systems. In addition to the regulated industries noted above, the firms with the oldest, most well established chargeback systems are generally those which have a divisional or matrix structure, product or brand managers, or are multi-industry.

Complex organizations which are also subject to governmental accounting regulations have special problems. The way costs are calculated for

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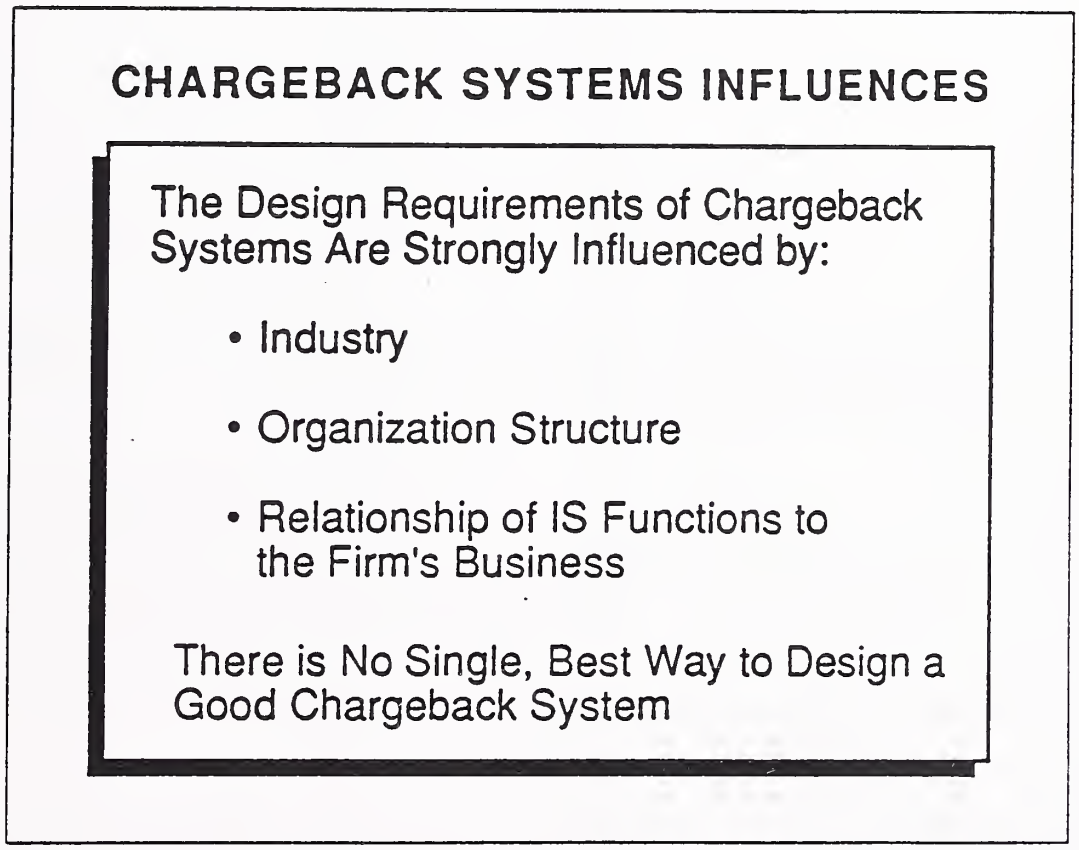
regulatory purposes may be misleading if the same figures are used in management responsibility reporting. In such cases, it is always wise to have a separate, parallel accounting system to support decision-making and responsibility reporting.

Companies with information systems which are highly specialized, centrally managed, and critical to their delivery systems (e.g., airlines) often do not have chargeback systems. In such cases, IS resources are not a discretionary expenditure for individual line managers and costs are controlled centrally. Such companies are often organized on a functional basis and do not feel a need for complex cost/profit center accounting.

Exhibit II-3 outlines chargeback system influences.

EXHIBIT II-3


CHARGEBACK SYSTEMS INFLUENCES
The Design Requirements of Chargeback Systems Are Strongly Influenced by:
• Industry
• Organization Structure
• Relationship of IS Functions to the Firm's Business
There is No Single, Best Way to Design a Good Chargeback System

D

The Steps in Designing a Chargeback System

There are three steps in the design of a good chargeback system. They are best approached by answering the simple questions; why, what, and how? The system's design objectives are the statement of why. As shown in Exhibit II-4, the list of facilities to be charged back consititutes the what; and the selection of the design parameters or alternatives consititutes the how.

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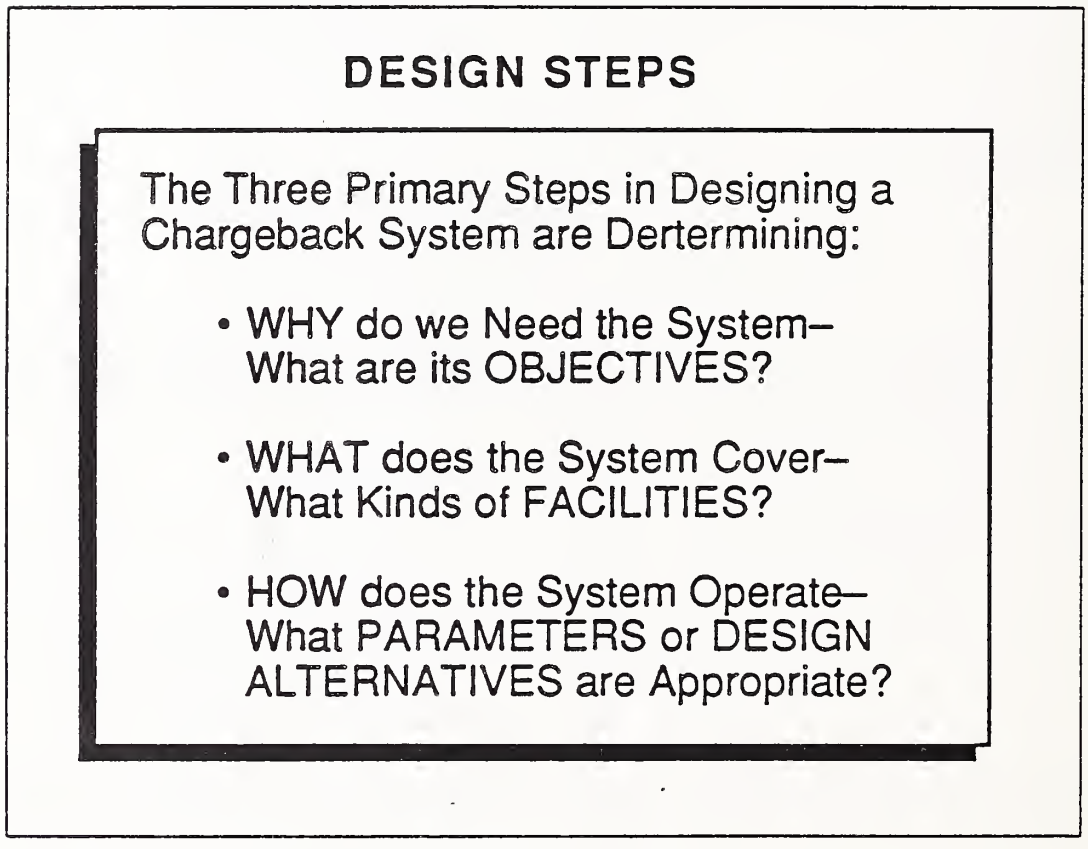
It is critical that the answers to these questions are logically consistent –that the parameters chosen support the specified objectives of the system rather than defeating them. An example of this kind of inconsistency is the situation where one of the system objectives is to use the chargeback cost data in evaluating the performance of a line manager. If the system design requires that the total costs of all IS resources be fully allocated at year end, based on share of overall usage, the line manager has no way of knowing or controlling his costs. Since his costs are largely determined by the extent of other people's usage, such data cannot be fairly used to hold him accountable.

EXHIBIT II-4


DESIGN STEPS
The Three Primary Steps in Designing a Chargeback System are Dertermining:
• WHY do we Need the System– What are its OBJECTIVES?
• WHAT does the System Cover– What Kinds of FACILITIES?
• HOW does the System Operate– What PARAMETERS or DESIGN ALTERNATIVES are Appropriate?

E

Types of Chargeback Systems Objectives

Chargeback system objectives may be organized into three major categories, with several subcategories, as shown in Exhibit II-5:

- Informational.
  - *Awareness* of resource utilization/cost.
  - Capture of data for *planning/budgeting* purposes.
- Motivational.
  - Encouraging *experimentation* and use of new technologies.
  - Changing patterns of resource usage (timing, on-line vs. batch, etc.).

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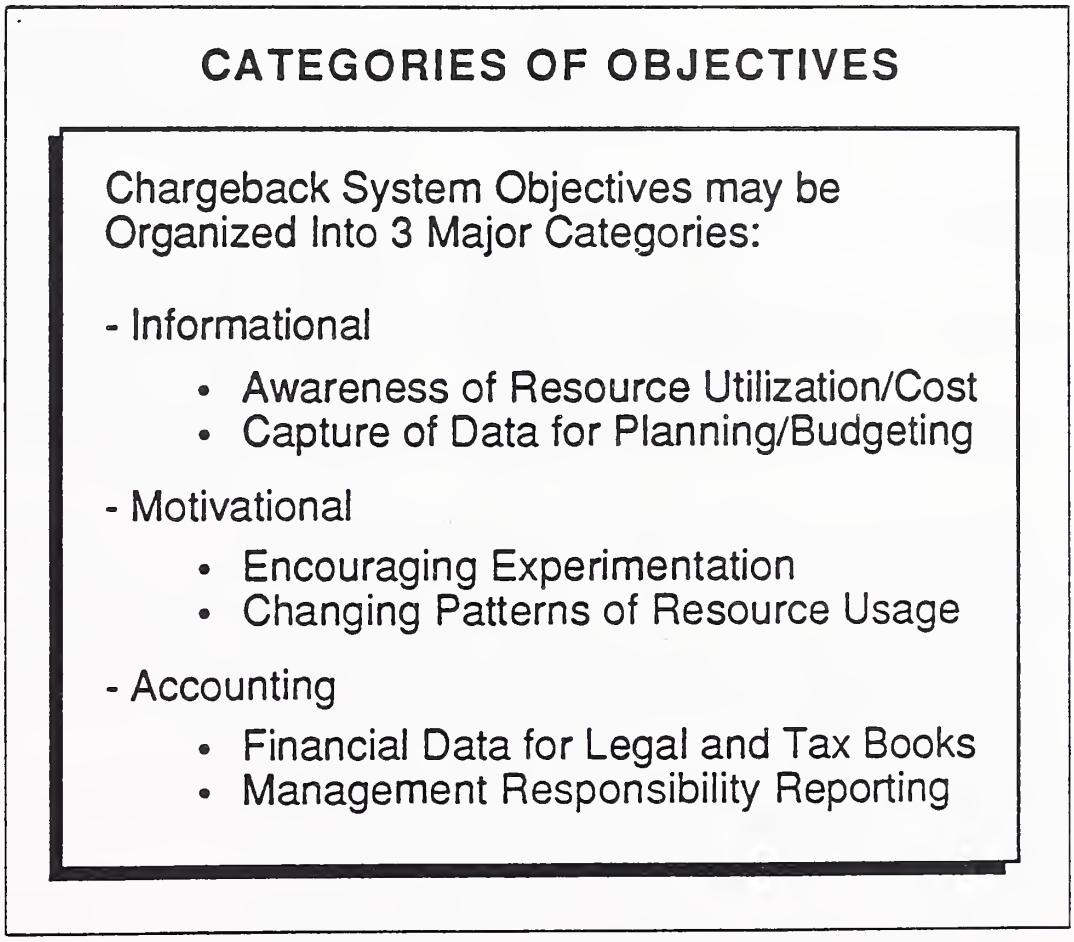
- Accounting.
  - *Financial* data for legal and tax books.
  - *Management* Responsibility reporting.

Informational objectives are generally less formal than those associated with accounting. Management Responsibility (MR) accounting shows the operating results achieved by individual managers and their decisions. Motivational objectives are nearly always associated with an MR accounting system. And, of course, a good MR accounting system is a prerequisite for using chargeback costs as a motivator. Exhibit II-5 outlines these points.

EXHIBIT II-5


CATEGORIES OF OBJECTIVES
Chargeback System Objectives may be Organized Into 3 Major Categories:
- Informational
• Awareness of Resource Utilization/Cost
• Capture of Data for Planning/Budgeting
- Motivational
• Encouraging Experimentation
• Changing Patterns of Resource Usage
- Accounting
• Financial Data for Legal and Tax Books
• Management Responsibility Reporting

F

IS Facilities Commonly Charged Back

The kinds of facilities generally associated with IS chargeback (shown in Exhibit II-6) include:

- Central data processing facilities–these are facilities running specific production applications, whether at a divisional/functional or corporate level, and utility operations such as Information Centers, timesharing systems, etc.

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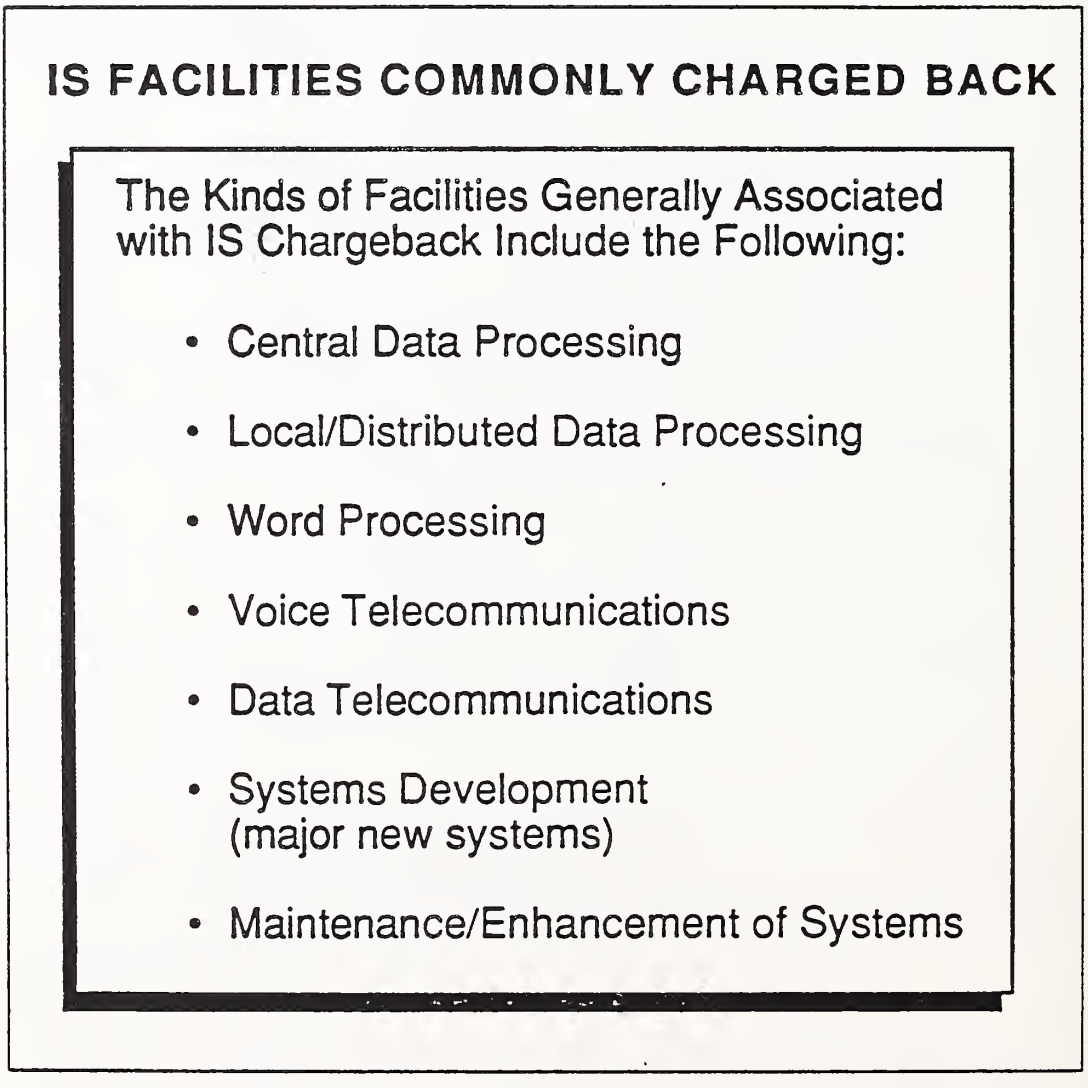
- Local/distributed data processing facilities (e.g., local printers, terminals, departmental processors, PCs, etc.).
- Word processing facilities.
- Voice and data telecommunications.
- Systems development (major new systems), and maintenance/enhancement of systems.

Most organizations do not have all of these types of facilities reporting to a single person, such as the head of IS. Nor do they have a single chargeback system that incorporates all of these types of facilities. In many cases, the same system or type of data may be used for several of these facility types. For example, development and maintenance programming are often not separated, nor is there always a separation between data and voice communications. The method of chargeback often depends on the technologies employed.

EXHIBIT II-6


IS FACILITIES COMMONLY CHARGED BACK
The Kinds of Facilities Generally Associated with IS Chargeback Include the Following:
• Central Data Processing
• Local/Distributed Data Processing
• Word Processing
• Voice Telecommunications
• Data Telecommunications
• Systems Development (major new systems)
• Maintenance/Enhancement of Systems

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G

System Design Parameters

The selection of parameters for the ten key design variables included in INPUT's model of chargeback systems allows for a wide variety of alternative designs for a chargeback system. The choice of parameters must be guided by the firm's objectives for the system; the more objectives established, the more significant and difficult making the choices will become. The ten key design variables and associated potential parameters are described briefly below and listed in Exhibit II-7:

1. *Cost Categories*–Categories of cost to be allocated by the system, such as direct, overhead, administrative, etc.

2. *Chargeback Basis*–Fixed unit costs based on budgeted expenditures or variable unit costs based on actual IS expenditures.

3. *Costing Scheme*–Costs based on utility concept of equal costs for equal service, or actual costs factoring in different rates for different geographic locations, etc.

4. *Pricing Scheme*–Demand-level pricing where rates vary by time of day, etc., or nondifferentiated price structures.

5. *Allocation Approach*–Costs distributed by fixed allocation ratios or based on usage.

6. *Reporting Scheme*–Frequency and nature of cost reporting to user community.

7. *Adjustment Scheme*–Year-end adjustments based on actual IS costs, or actual variances absorbed by IS.

8. *Business Structure*–Selection of profit or cost center orientation for the IS business activity.

9. *Resource Substitutability*–Determination of whether outside resources can be reasonably substituted for internal services and the definition of which resources qualify.

10. *Outside Resource Policy*–Determination of an appropriate policy consistent with other corporate policies for the use of outside resources where feasible.

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EXHIBIT II-7

BASIC DESIGN PARAMETERS

TEN BASIC DESIGN VARIABLES:

1. Cost Categories
2. Chargeback Basis (budgeted or actual cost)
3. Costing Scheme (actual vs. utility basis)
4. Pricing Scheme
5. Allocation Approach
6. Reporting Scheme
7. Adjustment Scheme
8. Business Structure
9. Resource Substitutability
10. Outside Resource Policy

H

The "Ten Commandments" of IS Chargeback

An effective IS chargeback system requires careful planning and implementation. Although specific details will vary from firm to firm, the "Ten Commandments," shown in Exhibit II-8, should always be observed:

1. *Have specific and well-communicated managerial objectives.* These are a necessity to insure effective understanding, support, and use of any chargeback system.

2. *Focus primarily on Management Responsibility reporting.* The objective of chargeback should be to influence managerial behaiior. Accounting data, while necessary, has little inherent value–its *use* is what is important.

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3. *Provide a separate, parallel accounting system where necessary for legal/regulatory purposes.*
   Where the firm's objectives are not supported by the kinds of data required for legal/regulatory accounting purposes, separate systems should be developed for managerial and legal/regulatory reporting.

4. *Provide a consistent approach to billing for all categories of IS resources while recognizing the differences inherent in different facilities.*
   Objectives and system design parameters for *all* categories of IS *and other* resources should be similar, to minimize the problems of inconsistent policy and data interpretation. This is especially important in making chargeback data an effective tool for influencing managerial behavior.

5. *Bill on the basis of (fixed) budgeted unit costs rather than (variable) actual operating costs.*
   Billing IS services on the basis of (fixed) budgeted unit costs rather than (variable) actual operating costs is an absolute necessity for effective managerial responsibility accounting. Where managers are not able to predict the cost consequences of their actions, they are generally unwilling to assume responsibility for these costs and will not spend much time managing these resources.

6. *Bill for user-oriented work units (transactions, reports, etc.) rather hantechnically-oriented resource units (CPU time, disk accesses, etc.) wherever possible.*
   Billing should be in user-oriented work units (transactions, reports, etc.) rather than technically-oriented resource units (CPU time, disk accesses, etc.). Users generally cannot influence the resource utilization of production applications, although they can change their use of resources in utility applications (e.g., timesharing).

   During budget and planning sessions, users should be given a rough idea of how their applications use IS resources and should consider this in establishing development tradeoffs and priorities.

7. *Get and communicate top management support for the system.*
   Top management support, effectively communicated, is clearly essential for acceptance and use of any chargeback system.

8. *Let IS management run the system. IS management should control IS chargeback, not corporate staff units.*
   Corporate accounting/planning staff generally do not understand IS technology and are not close to IS users. Staff designed/managed chargeback systems are often overly complex, unrealistic, do not provide the basis for effective Managerial Responsibility accounting, and tend to drive a wedge between IS management and the user base.

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9. *Allow the IS function to be run as a business.*
   IS functions should berun in a businesslike manner, with investments, service levels, product development, knowledge of the customer, etc. being key management considerations. An ill-designed chargeback system makes this very difficult.

10. *Above all, be simple and equitable, create minimal overhead, and be consistent with both the objectives of management and the firm's other administrative processes.*
    As with any administrative process, a good IS chargeback system should support, rather than inhibit, the firm's management process.

EXHIBIT II-8

"TEN COMMANDMENTS" OF IS CHARGEBACK

1. Specific Managerial Objectives
2. Management Responsibility Reporting
3. Separate Legal/Regulatory System
4. Consistent Billing Methodology
5. Budgeted (Fixed) Unit Costs
6. User-Oriented Work Units
7. Top Management Support
8. IS Management Running the System
9. Running IS Functions as a Business
10. Simplicity, Equity, Minimal Overhead, and Consistency

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Chargeback System Issues and Objectives

Chargeback systems are like clothes:

- They come in a variety of sizes and designs.
- Quality and value range from poor to excellent.
- The product has to be tailored to the user; there is no "one size fits all."

A

The Context of Chargeback Systems

Chargeback systems cannot be considered in isolation from the rest of the organization's administrative systems. There are definite relationships between chargeback systems and:

- Strategic planning.
- Equipment/facilities planning.
- Capital budgeting.
- Operational budgeting.
- Accounting.

In summary, Chargeback Systems require input from planning and budgeting functions and provide output to accounting functions. Exhibit III-1 depicts some of these relationships.

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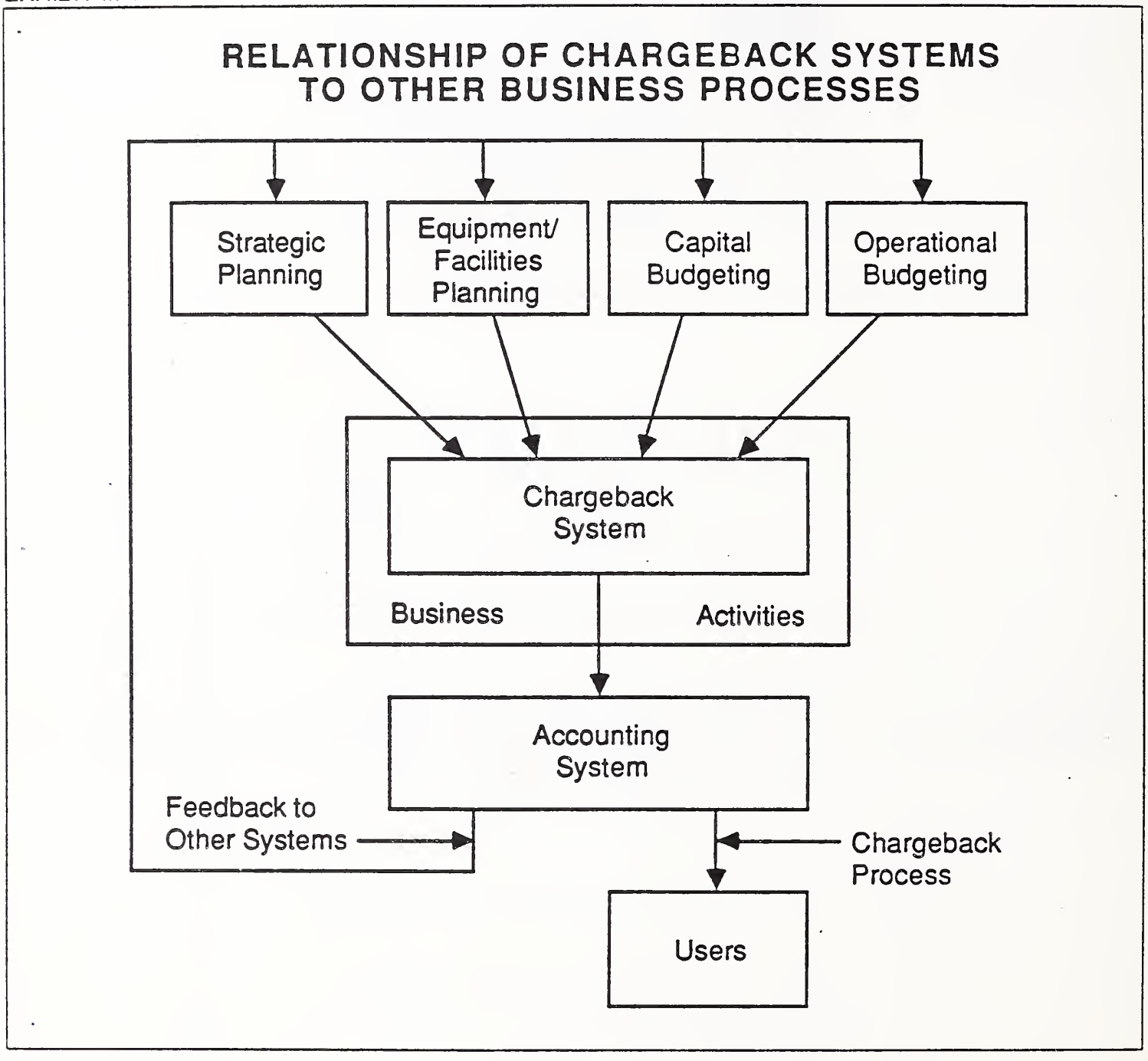
EXHIBIT III-1



Different chargeback systems and procedures are needed to support different aspects of a firm's information services:

- Central data processing facilities.
- Distributed data processing facilities (e.g., departmental processors, PCs, local printers).
- Word processing facilities.

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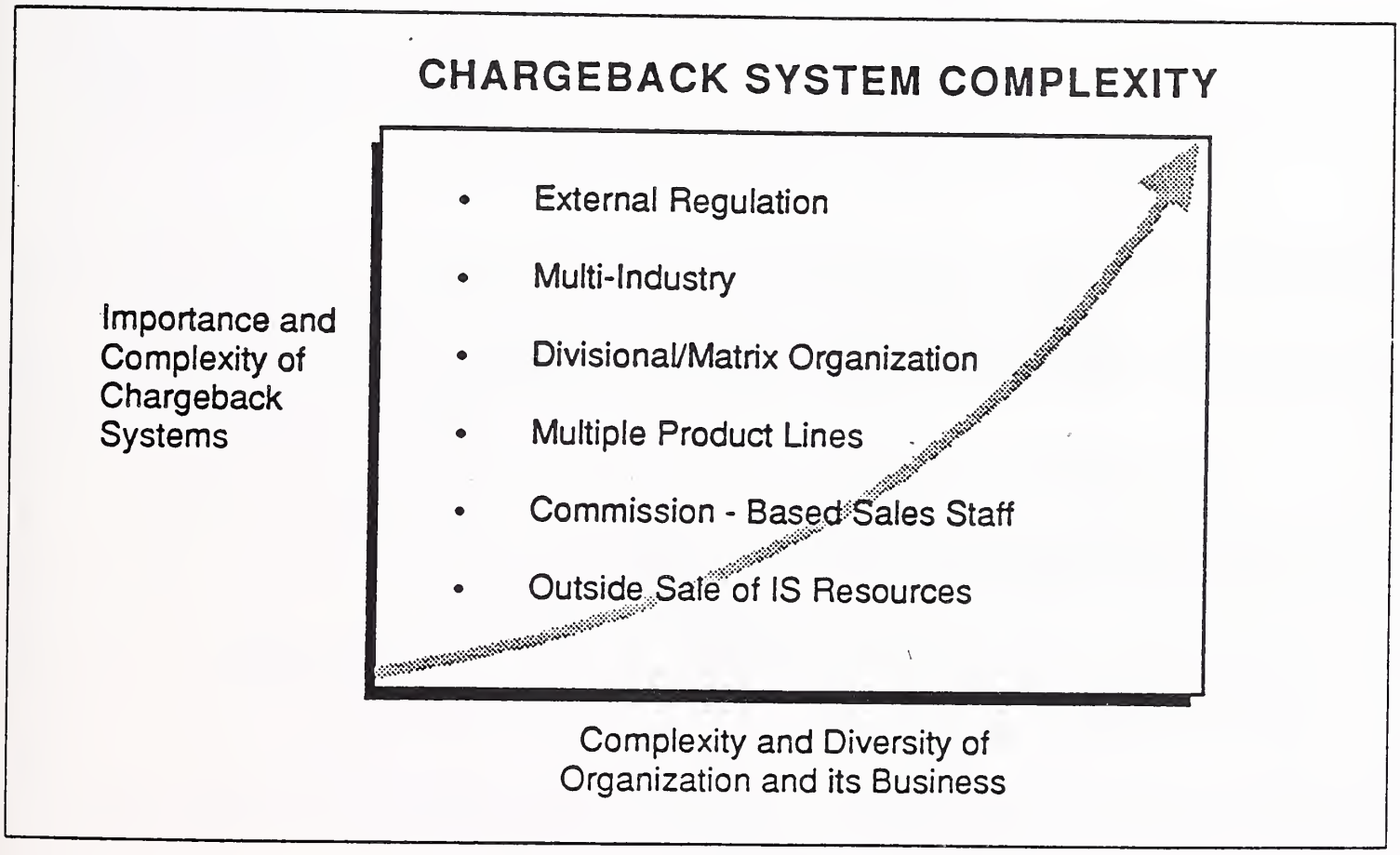
- Voice telecommunications.
- Data telecommunications.
- Systems development (major new systems).
- Systems maintenance/enhancement.

The importance and complexity of an organization's chargeback systems is directly related to the diversity and complexity of the firm, as shown in Exhibit III-2.

EXHIBIT III-2



The most important factor in evaluating chargeback systems is the set of objectives the company has in mind for these systems.

- Any system that doesn't meet its objectives is a problem.
- If there are no clear objectives, there are no good criteria for evaluation.
- A system that lacks objectives and criteria for evaluation often creates undesired side effects.

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B

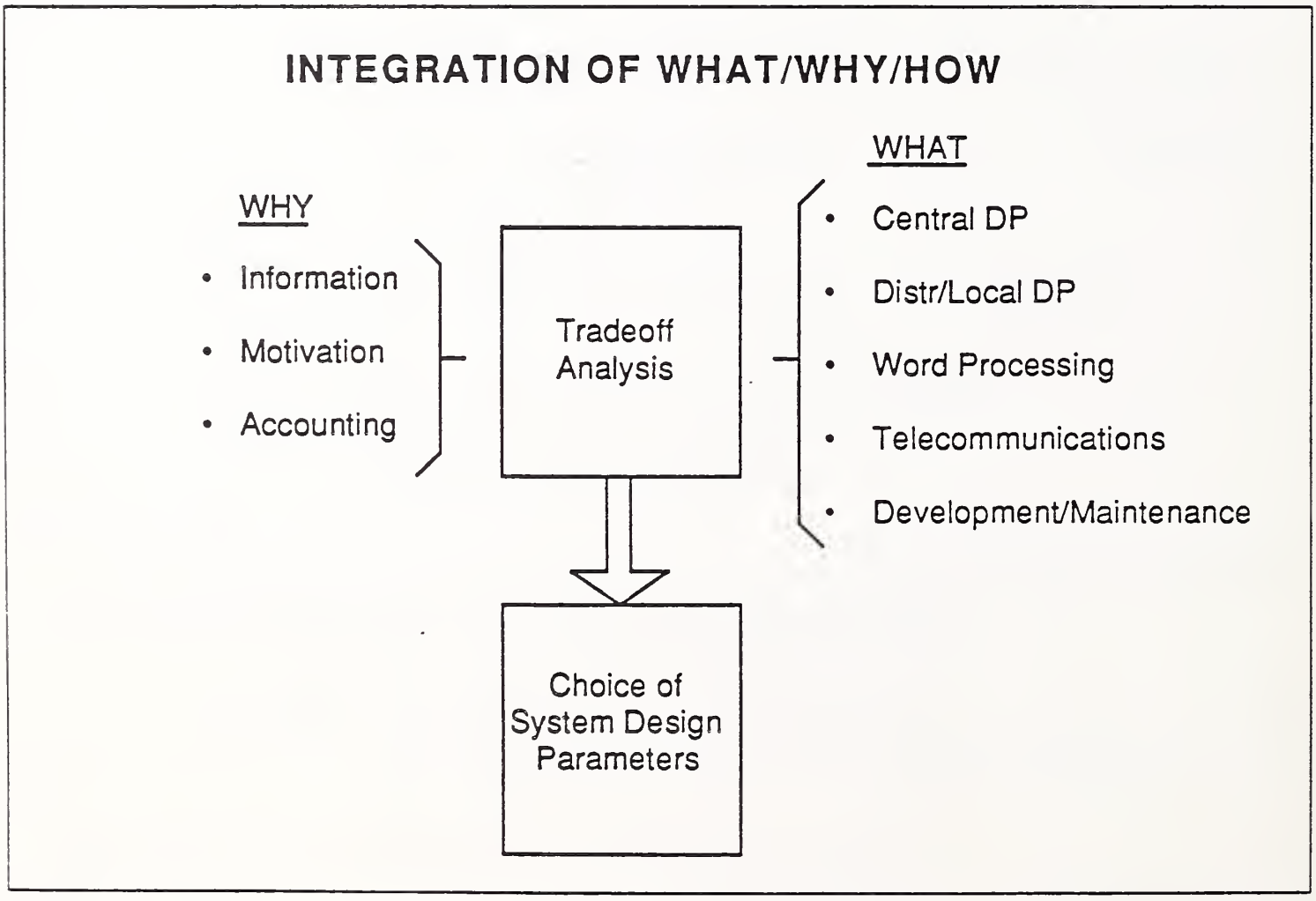
Chargeback System Issues

The primary issues surrounding chargeback systems are the basic questions surrounding any system implementation. They may also be viewed as the basic steps in the system design process:

- Why do we need the system–what are its objectives?
- What does the system cover –in this case, what facilities are we charging back?
- How does the system operate–what parameters or design alternatives are relevant for each type of facility?

The answers to these questions determine how effective the system will be–how well it is accepted, the perceived fairness and accuracy of the numbers, etc. As Exhibit III-3 suggests, it is critical that these answers are logically consistent–that the parameters chosen support rather than defeat system objectives. Insufficient focus on these issues can seriously undermine the utility of any system.

EXHIBIT III-3



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Examples of the issues which arise around specific design choices include the following:

- Billing rates (charges per unit of resource used) which vary with the amount of resource usage or with the total usage of a system are not popular.

- Particularly unpopular are systems where the total cost of a resource is allocated at year-end based on share of usage.

- Users are generally suspicious about chargeback parameters which are hard to understand, or do not relate to their business (e.g., EXCPs, Kilo-core seconds, Kilobaud hours).

- Chargeback of overhead and administrative costs is also looked upon with suspicion. Much of the argument about the costs of internal vs. external service providers hinges on how much overhead is loaded into the internal chargebacks. And one also hears the argument that, "If I did it for myself, I wouldn't be paying your overhead."

- Comparisons of internal chargeback rates with the cost of "comparable" outside services are nearly always suspect.

  - Internal chargeback objectives are generally not the same as the profit objectives of outside organizations.

  - It is very difficult to get truly comparable cost numbers.

  - It is also difficult to make reasonable comparisons between the levels of service/reliability/backup/etc. available from internal versus external sources.

Related to this is the issue of how the charging facility is viewed and managed.

- As a cost center which provides service to the rest of the organization at a break-even price.

- As a profit center which is responsible for maximizing its revenue–by definition at the expense of its customers' profit

The objectives and uses of a chargeback system are themselves issues in many firms.

- If managers are evaluated on how much they use of internally produced/ charged resources, the fairness and accuracy of the chargeback systems will usually be an issue.

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- Where strategic decisions are being made about adding or discontinuing operations/products/etc., chargeback costs and policies will often be a key point of contention:
  - How do you deal with fixed versus variable items?
  - Should overhead costs be included, or just direct costs of the facility?
  - Who bears the costs of incremental capacity required for a new venture, or capacity freed by a reduction in workload on the facility?
  - Should we use the same ground rules for strategic decisions that we use for short-term evaluation of managerial performance?

Some objectives and design choices conflict with each other. For example, motivating shifts in resource usage generally requires that users be charged for the machine resources they consume (tape mounts, Mbytes of DASD, etc.), while users generally want to be billed in other terms.

Finally, when system objectives are not clearly understood and accepted, everyone is critical of the resulting system.

C

Chargeback System Objectives

Chargeback system objectives may be organized into three major categories, with several subcategories:

- Informational.
  - Awareness of resource utilization/cost.
  - Capture of data for planning/budgeting purposes.
- Motivational.
  - Encouraging experimentation and use of new technologies.
  - Changing patterns of resource usage (timing, on-line vs. batch, etc.).
- Accounting.
  - Financial data for legal and tax books.
  - Management Responsibility reporting.

Informational objectives are less formal and rigorous than accounting objectives–especially when dealing with chargebacks for Information Services (IS).

- IS chargeback systems are only one of the ways that managers are made aware of the resources they use.

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- Information Services are only one of the many types of resources that managers are responsible for.

- Data for planning purposes does not require the accuracy or precision of data used for accounting purposes.

By Financial Accounting data, we mean the official, legal books that are required by tax authorities, the Securities and Exchange Commission, etc.

- Financial accounting records must "prove" to the penny and satisfy Generally Accepted Accounting Principles.

- There may be several sets of financial accounting books which serve different purposes or show data from different perspectives (corporate tax, legal vehicle, product line, geographic division, etc.).

- Financial accounting records may be used as the basis for generating real revenue for the firm by billing outside organizations for information or processing services.

The objective of Management Responsibility (MR) accounting is to show the operating results achieved by individual managers and their decisions. MR accounting is typically found in companies that exhibit substantial elements of matrix management.

- Individuals who are tracked by MR systems, such as product or brand managers, may have no resources directly under their control.

- MR accounting focuses on varying time horizons, such as the life of a loan, a significant change in product design, the duration of a new advertising campaign, etc.

- MR accounting often allocates/bridges the results of several different operations or the records on several sets of legal books. For example, a US-based loan officer may get MR credit for a Eurodollar loan which appears on the bank's legal books in London.

MR accounting does not have the same accuracy or precision requirements as financial accounting.

- MR accounting does not have the legal requirements for audit trails, etc. that financial accounting does, as MR data are supposed to be used for internal purposes only.

- MR accounting focuses on variances that are material; minor differences are acceptable.

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- MR accounting often uses estimates or budget figures for transfer pricing or cost allocation, rather than requiring exact financial accounting data.

It is impossible to overstate the importance of understanding the system objectives, making them internally consistent, and ensuring that the system's design does not defeat them. Objectives can conflict–as when legal books and MR reporting require significantly different presentations of the same underlying transaction. Such a situation requires a system design that allows both presentations to be developed and used where applicable while not confusing users about the differences.

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Chargeback System Design Alternatives

There are many parameters which enter into the specification of a chargeback system. The choice of parameters allows for a wide variety of alternative chargeback system designs.

As noted above, the choice of system parameters should be guided by the company's objectives in using a chargeback system. The more objectives a company has for the chargeback system, the more significant are its choices of parameters.

The following sections describe some of the more important parameters and the choices available for each. Each parameter is described in terms of a question and a list of potential answers. For some questions, multiple answers are possible. In addition, certain combinations of parameters are technically invalid or may be logically inconsistent; for example, year-end billing adjustments to eliminate over/under recovery are not consistent with a profit center concept.

In the following discussion, we use the term "facility" to designate the set(s) of resources or services/activities which are being charged back to users.

A

What are the Basic System Objectives- How Will the Data be Used

- Informational.
  - Awareness.
  - Planning/budgeting.
- Motivational.
  - Experimentation.
  - Resource utilization shifting.
- Accounting.
  - Financial.
  - Management Responsibility.

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B

What Kinds of Facilities are to be Charged

- Central data processing facilities. Facilities running specific production applications–utility operations such as Information Centers, timesharing systems, etc.
- Local/distributed data processing facilities (e.g., departmental processors, PCs, local printers).
- Word processing facilities.
- Voice telecommunications.
- Data telecommunications.
- Systems development (major new systems).
- Maintenance/enhancement of systems.

C

System Design Parameters

1. What Categories of Cost Are Included?

- Direct costs for productive facilities (hardware, people, etc.).
- Facility overhead (heat, light, space, etc.).
- Facility administrative costs (mgmt/admin staff, supplies, etc.).
- Overhead/administrative costs allocated from other areas of the company to the facility which is being charged back to users.

2. Are Charges Based on Budgeted Rates or Actual Costs?

- Based on budgeted numbers calculated at the start of the year.
- Based on actual costs incurred by the facility during the year.

3. Are Costs Calculated on an Actual or Utility Basis?

- Actual basis means that users pay rates which vary by location, depending on the costs for serving each location.
- Utility basis means that all users, wherever located, pay the same rates for equivalent service, with the facility absorbing differences in the cost to deliver service to different locations.

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4. Is There Any Form of Demand-Level Pricing With Rates Varying by Time of Day, Shift, Day of Week, Etc.?

- No, costs are the same at any time of day in any given location.
- Yes, costs do vary by time of usage.

5. How Are Charges Distributed?

- Based on some fixed system of allocation.
- Varying, based on some measures of usage.
  - Resources consumed (usually machine-oriented resources such as EXCPs, Kilobaud hours, Kilocore seconds, etc.) – output produced (e.g., transactions processed, reports generated, number of entries in a data base).

6. What is the Timing of the Chargebacks?

- Monthly or in conjunction with other internal reporting cycles.
- At year end.

7. Is There a Year-End Adjustment to Eliminate Over-/Under-Recovery?

- No, the charging unit absorbs any variance in recoveries.
- Yes, users are expected to pay exactly 100% of facility costs.

8. How is the Charging Center Perceived and Evaluated?

- Cost/Service Center, with a target of meeting certain cost recovery goals.
- Independent Profit Center, with a target of maximizing revenue.

9. Is It Technically Feasible For Users to Acquire the Same Facilities From an Outside Source?

- Equivalent services or required data are not available outside, security considerations would not allow outside services, etc.
- Equivalent facilities are transparently available to the user from sources outside the organization.

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10. Are Users Allowed the Option of Using Outside Facilities If They Do Not Like the Service Levels or Costs Associated with the Charging Center?

- Yes, it is allowed whenever it is technically feasible.
- No, policy does not allow users this option.

D

Integration/ Consistency of Design Alternatives

The objectives and parameters described above should first be established on an overall basis. Then, each individual type of facility should be subjected to the same analysis. This will identify any differences in the way specific facilities are to be viewed and managed. The objective of this analysis is twofold:

- To ensure maximum consistency in the way all facilities are treated.
- To identify and understand those areas where the process should be inconsistent.

One good way to summarize the system design choices is with a worksheet similar to Exhibit IV-1. This worksheet has one column for each type of facility and one row for each of the ten parameter choices. At the bottom of the worksheet is a legend which lists the 10 design parameters and indicates the alternatives available under each parameter. Each alternative is given a one letter code for entry in the design matrix. (For example, if charges for data telecommunications are based on a fixed allocation, an "F" is placed in row 5 under column D.)

This matrix provides a simple way of indicating the design alternatives chosen for each type of facility, as well as showing how the chosen parameters may differ from one type of facility to another. A similar worksheet could be used to compare the overall parameters of the IS chargeback process with other types of chargeback.

As the following chapter points out, consistency of chargeback system objectives and parameters is a significant problem for most IS executives. The effort expended in this kind of analysis is not only critical to the success of chargeback, but can provide valuable insights on many other seemingly unrelated issues. The concluding chapter contains INPUT's recommendations on the choices for each design parameter and illustrates how some of the choices are related to these other issues.

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EXHIBIT IV-1

CHARGEBACK SYSTEM SUMMARY WORKSHEET

CHARGEBACK SYSTEM OBJECTIVES	
• Information - Awareness	• Information - Planning
• Motivation - Experimentation	• Motivation - Resource Shift
• Accounting - Financial	• Accounting - Mgmt. Responsibility

SYSTEM DESIGN ALTERNATIVES	FACILITY TYPES						
	C	L	W	V	D	S	M
1. Cost Categories							
2. Budget Rates v. Actual Costs							
3. Cost- v. Utility-Based Rates							
4. Demand-Level Pricing							
5. Distribution of Charges							
6. Timing of Chargebacks							
7. Year-End Adjustments							
8. Cost- v. Profit Center							
9. Outside Usage Tech. Feasible							
10. Outside Usage Allowed							

C = Centralized
L = Local/Distributed
W = Word Processing
V = Voice Telecomm.
D = Data Telecomm.
S = Systems Development
M = Systems Maintenance

LEGEND: < Blank > = no or none where choice is yes/no

1. Cost Categories	D = Direct	O = Overhead
	A = Administrative	L = Allocated
2. Budget Rates v. Actural Costs	B = Budgeted Rates	A = Actual Costs
3. Cost - v. Utility - Based Rates	C = Cost-Based	U = Utility-Based
4. Demand - Level Pricing	D = Demand-Level Pricing is Used	
5. Distribution of Charges	F = Fixed Alloc.	O = Output Produce
6. Timing of Chargebacks	M = Monthly, etc.	Y = At Year End
7. Year-End Adjustments	Y = Year-End Adjustments to billing	P = Profit Center
8. Cost v. Profit Center	C = Cost Center	
9. Outside Usage Tech. Feasible	F = Outside Usage Technically Feasibile	
10. Outside Usage Allowed	A = Outside Usage Allowed Where Feasible	

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Survey Results

A

General Observations

The people who responded to this survey were generally key IS or financial managers. We did not interview users of IS services; however, many of the people we interviewed had been users at one time and felt that they had a good understanding of the users' perspective.

Most of the firms participating in the survey had some form of chargeback system in use and most of the people we interviewed were dissatisfied with their current system.

In cases where a chargeback system had been in place for a long time, users were generally reported to be satisfied with the fairness of the system. After some period of time, chargebacks become a part of the user's daily life and the initial problems of acceptance usually disappear.

However, even where users have come to accept chargebacks, some IS managers find that their current systems have serious negative side effects.

- Most frequently cited were situations where chargeback and capital budgeting systems use different ground rules for allocation of overhead costs, and new systems or data centers are justified on the basis of "funny money" cost savings rather than on "hard dollars."

- Also significant was the problem of chargebacks being loaded with so much overhead that internal costs were higher than external (service bureau) costs for similar services.

Both of these situations demonstrate how the details of a chargeback system can have a serious impact on IS strategy issues such as centralized versus decentralized operations.

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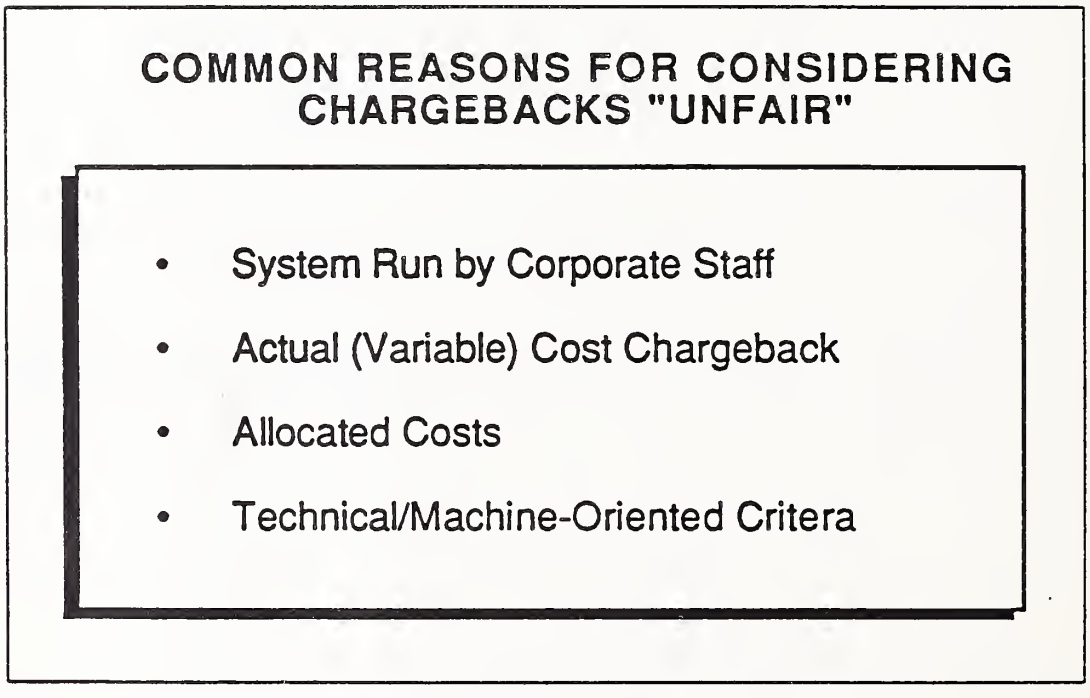
As Exhibit V-1 shows, four issues were commonly cited as reasons why users perceived a chargeback system to be "unfair":

- Situations where corporate staff (finance/controller) design and run the system, instead of IS management (and users).
- Situations where actual (variable) IS department costs, rather than budgeted costs, form the basis of chargeback.
- Situations where costs are allocated, rather than charged on the basis of usage.
- Situations where charges are based on technical or machine-oriented measures of usage (CPU time, EXCPs, etc.), rather than user-oriented measures (transactions, output, etc.)

EXHIBIT V-1


COMMON REASONS FOR CONSIDERING CHARGEBACKS "UNFAIR"
• System Run by Corporate Staff
• Actual (Variable) Cost Chargeback
• Allocated Costs
• Technical/Machine-Oriented Critera

None of the respondents reported having separate chargeback systems for financial accounting and managerial accounting purposes. This caused managerial problems at firms where the chargeback rules were subject to outside regulatory constraints. For example, an insurance company's regulators required that actual monthly costs be charged back to specific product lines. Users were satisfied that the system was "fair"–in part because they knew it was mandated by outside authority. But management found that users had a hard time budgeting for IS resources and refused to be held accountable for over/under budget situations.

Every firm interviewed felt that the IS function was of major strategic importance. On the other hand, there were wide variations in how firms viewed the effectiveness of their IS function in terms of:

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- Maturity/sophistication of applications and operations.
- Quality of operations.
- User orientation (versus internally focused IS orientation).
- Cost of services to users.

Those firms with old, established chargeback systems generally indicated that people understood the purposes and objectives of their chargeback system as well as the details of how they are billed. On the other hand, firms with newer chargeback systems were struggling with user understanding and acceptance.

Nearly everyone indicated that their system was accepted as being reasonably fair by most users. While there were often questions about either billing rates or the details of the process, no one reported users feeling that they were "screwed by the system."

Despite a consensus that billing should be as user/work oriented as possible, everyone indicated that their current systems were far too technical/resource-oriented. This was cited as one of the major problems with existing systems, and also one that top management did not seem to appreciate.

Development of chargeback systems is always low on the list of IS priorities. If top management does not take the structured view recommended by INPUT (and supported by all we interviewed), they will not see how the process defeats their objectives. Problems caused by a poor chargeback system are often dismissed by top management as simple "bellyaching," and the existing process is deemed adequate simply because, "it runs, so why change it?"

The question of how chargeback objectives are and should be communicated provided an interesting response. There was clear agreement that the system objectives and processes should be understood by everyone who works with the system. But in the firms with old, well-established chargeback processes, there was generally no expressed need to communicate these things. One manager said that:

"*Chargeback is so integral a part of the way we do business that no explicit communication (of managerial objectives) is necessary–it is accepted as part of everyone's daily life, just like a paycheck. It would be redundant to explain why we need chargeback systems.*"

The firms which felt a strong need to communicate were primarily those who were newer to the chargeback game or those who had primitive chargeback systems. A significant exception was a firm in a highly

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regulated industry, which had a well established system; and felt it was very important to communicate objectives and process because of the regulatory implications of chargeback and cost accounting.

All those who felt it important to communicate also felt that the system and the communication should be the responsibility of IS management. Where corporate staff units ran chargeback systems, there was general agreement that "no one can communicate with those guys, and they don't understand our business anyway."

B

Specific Patterns Observed

Our survey showed certain patterns in how firms approached the issue of chargeback, based on the firm's industry, organizational structure, and the relationship of IS to the firm's business.

1. Profile of the Respondents

This survey covered 12 major firms in a variety of industry sectors. Among the sectors represented were:

- Aerospace
- Airlines
- Banking
- Brokerage
- Entertainment
- Insurance
- Manufacturing (industrial)
- Manufacturing (soft goods)
- Petroleum
- Shipping

Of this group, three firms did not have chargeback systems–two airlines and the entertainment firm. Three of this group considered themselves to be multi-industry firms; the rest were single industry.

Only two of these firms, the two airlines, had a functional organization structure. Two had divisional structures with significant geographic components. The remaining firms had standard divisional organizations, with the divisions based on customer or product segmentation.

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2. Who Charges and Who Doesn't

As Exhibit V-2 shows, there were consistent differences between those firms that charged back and those that did not. Firms that did not have an internal chargeback system for IS resources had one or more of the following characteristics:

- A large, central IS resource base that forms the heart of a narrow, specialized industry, e.g., airlines.
- No regulatory requirement for cost allocation.
- A predominantly functional organization structure.
- No requirement for detailed profit calculations by division, product or product line, subsidiary, etc.

By contrast, the more of the following characteristics found in a firm, the more likely it is to have an old, well accepted and comprehensive chargeback system:

- Regulatory requirement.
- Multi-industry, or broadly-defined single industry.
- Industry where IS resources have a long history of being key elements of the production process.
- Divisional or matrixed organization, with heavy emphasis on cost- and profit-center management.
- Multiple/diverse products or product lines.
- Significant income generated by commission-based sales staff (e.g., stock brokers).
- Outside sales of the firm's IS resources, databases, etc.

The major airlines provide an interesting case. They must have external chargeback systems because so much of their income (and cost) is derived from information services provided to travel agents and other airlines. However, they do not charge for these same services internally because the airlines' decision-making is so centralized that the normal objectives of a chargeback system do not apply to their situation.

As major airlines begin to diversity into related fields (e.g., hotels, rent-a-car), sell partnerships in their IS resources to other firms (as United Airlines with the APOLLO reservations system), or use their IS resources

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and technology to develop new businesses (as American Airlines with AMR Information Services), the pressure for them to adopt some form of internal chargeback systems can only increase.

EXHIBIT V-2

FACTORS INFLUENCING WHETHER CHARGEBACK OCCURS

NO CHARGEBACK	CHARGEBACK
• No Regulatory Requirement • Narrow/Single Industry • Functional Organization • Single Product/Service	• Regulatory Requirement • Multi-Industry • Divisional/Matrix Structure • Multiple/Diverse Products • Commission-Based Sales • Outside Sales of IS Resources

Sometimes existing chargeback systems are so much in conflict with changing management objectives that chargeback is abolished. This happened at one money center bank. At a time when the "back office" and systems were being totally reorganized, it became impossible to allocate costs to products and services using the old standards that were developed by the corporate industrial engineering staff. At the same time, control over systems and operations decisions was being taken out of the hands of business units and centralized under the EVP of systems and operations.

In place of chargebacks, a detailed service level tracking system was developed to ensure that operations and systems performed at, or better than, the service level standards that they negotiated with the user business units. Maintenance/development priorities were also negotiated with users during the annual budget cycle. As long as the systems and operations group met its service and delivery targets, it satisfied the users. Meanwhile, the group had its own internal targets for integration and cost reduction of the overall systems/operations base and was responsible to top management for progress against these objectives.

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A number of years later, after the situation had stabilized, the systems and operations group was again decentralized to business units and the business units reinstituted various forms of cost tracking/chargeback. However, this time the system was designed and run by user management rather than by a corporate staff unit.

As technology forces the costs of IS hardware down and makes it easier to decentralize the IS function, the managerial issues surrounding chargeback become more complex. Where IS resources are centralized, they are generally charged back to otherwise decentralized divisions. But once a division gets control of its own IS resources, the requirements and objectives of chargeback may be different from those of corporate IS and from those of other divisions.

One case in point involved an aerospace firm which had a strong, centralized IS function and a well accepted chargeback system. When IS was decentralized, some divisions continued to use the old chargeback system in their own IS organizations. Others had no apparent need for chargebacks and dropped the system within their division. The largest division to drop chargeback was an advanced systems division which did mostly R&D work. Although their systems were very sophisticated, they were considered to be personal productivity tools for the engineers and their cost was included in the division's overhead.

C

Comments on Specific Issues

There was substantial agreement among those surveyed on a number of the issues raised by the study. On other issues there were significant disagreements. Some of these disagreements arose because of differences between the firms' various environments, while others are probably attributable to the relative experience/maturity of the firm's IS function and its past experience with chargeback systems.

1. What Are the Important Issues?

All respondents agreed that it is valuable to look at chargeback systems via a model such as the one used in this study. There was also general agreement that objectives, facilities, and parameters are important issues to deal with. However, several other issues emerged as significant to a number of IS executives. These are summarized in Exhibit V-3.

Many respondents felt that the key issue was whether or not to charge back. Although most people felt that it was valuable and important to do so, there were many negative aspects cited:

- They are costly to develop and administer, in terms of both human and machine resources.

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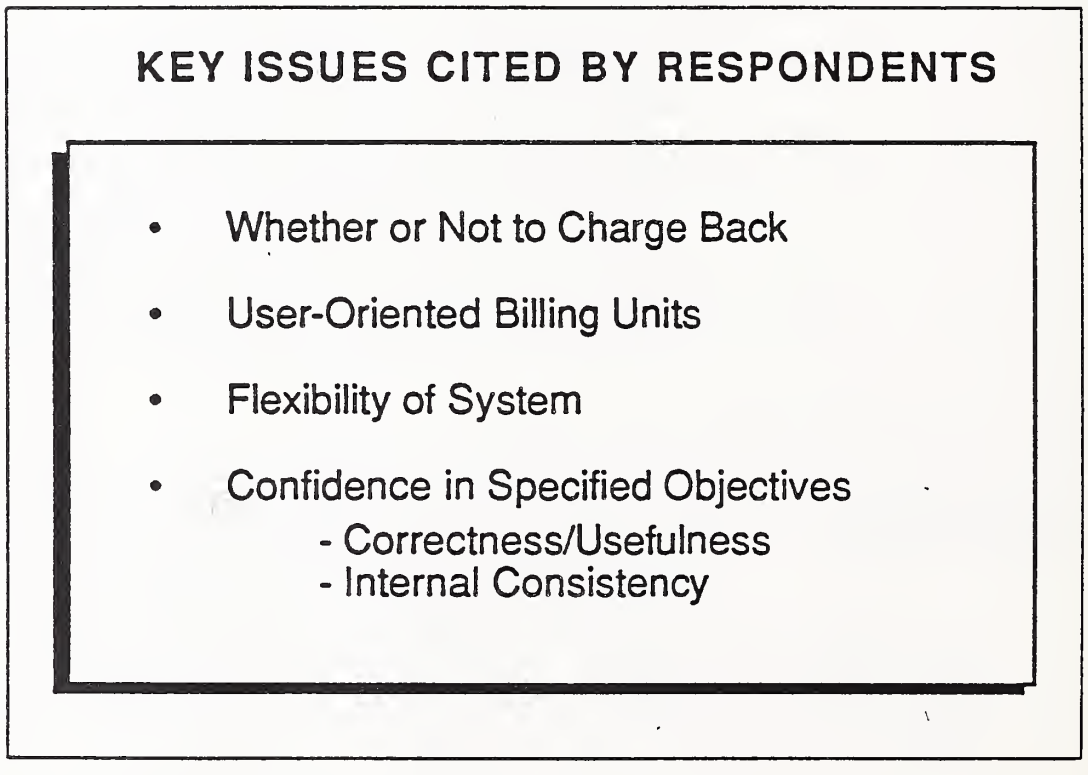
- They may tend to inhibit resource usage and thereby decrease productivity due to perceived budget limitations and resource costs.
- They sometime generate counterproductive decision processes:
  - Causing people to focus on resource utilization rather than quality of service and user requirements.
  - Producing strong pressure for development and support staff to be "fully billable" rather than productive.
  - Leading to inappropriate tradeoffs and priority setting.

EXHIBIT V-3


KEY ISSUES CITED BY RESPONDENTS
• Whether or Not to Charge Back
• User-Oriented Billing Units
• Flexibility of System
• Confidence in Specified Objectives
- Correctness/Usefulness
- Internal Consistency

One manager went so far as to say that "The chargeback system is often a religion, and no one is allowed to ask, 'does it provide for effective decisions and management process.'" An example cited by this manager is the strong pressure to recruit bodies to fill staff quotas in development projects. Other considerations such as the quality of staff hired, cost of training, retention rates, etc. are not a high priority. The result is that everyone focuses on acquiring resources, but nobody cares about managing them once they are on board.

Given the decision to operate a chargeback system, there are several key issues which people cited in addition to the basic three (why/what/how). One of these was the importance of basing charges on user-oriented work units. Except in the limited case of timesharing systems, most managers

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felt that it was impossible to realize many of the managerial objectives of chargeback if the system were based on technical/resource usage parameters which no one could understand or control.

Another key issue is the flexibility of the chargeback system to accommodate changing business climates. When a firm wishes to introduce new products, restructure its operations, or reorganize its marketing/distribution/product management, etc., in response to changing market conditions, its chargeback systems should help rather than hinder such transitions.

A final but very important issue is how confident you are that you have the right management objectives for the system. Are the current objectives appropriate for the present situation? How often should objectives be reexamined when the firm's environment is rapidly changing? How should they evolve as the organization matures and gains more experience in using chargeback systems?

Lack of confidence in the system's objectives makes effective top management support impossible. Blind confidence is what turns a chargeback system into a religion. Real confidence is built on a clear process for setting and communicating these objectives.

2. Why Chargeback?

Despite the problems–both potential and real–cited by those we interviewed, everyone felt that IS chargeback is an important and valuable managerial tool, largely for the reasons cited in Exhibit V-4. Even those who do not currently have a chargeback system felt that chargeback is valuable and indicated many problems associated with not using one.

One of the airlines has cut back its IS planning staff so much that little planning is done. But even if the staff units were still in place, they would have little data to study without a chargeback system. In place of a formal planning process, a top level group of VPs serves as an IS steering committee, meeting periodically to set priorities for the IS function. Steering committee members have all been with the firm for many years, understand the business, and have a very collegial, effective approach to the task.

This airline used to have a chargeback system, but it was abandoned in the early 1970s because "no one believed the numbers, and it was all 'funny money' anyway." No one could explain or control variances in what was intended as a cost reporting/responsibility system." This is a good example of a situation where management's objectives were not in synch with the system's parameters (the system was totally based on technical/resource utilization, not user-oriented work units) and the system failed. One of the reasons for abolishing the planning staffs was their association with the discredited chargeback system.

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Without a good planning process, including a chargeback system, IS managers feel "at the mercy" of the steering committee and cannot provide clear evidence to support their position in presentations to the steering committee. This forces them to operate in a reactive mode and sometimes leads (they feel) to suboptimal use of their limited resources.

All firms with chargeback systems had a divisional structure. All of these firms also indicated that IS was a strategically significant aspect of their business and that chargeback of IS resources was very important to their managerial process. The most common observation was that chargeback served as a good means to allocate limited strategic resources among competing divisions, and to specific products and services. Despite the friction and heat often generated by chargeback, one manager characterized chargebacks as a very useful "tool and lubricant" for the resource allocation problem.

Other common reasons why managers supported chargeback included:

- Developing awareness of the relative cost of IS components in individual products and the proportion of IS to other costs associated with these products.
- Providing the user of IS services with a means to evaluate his value to the business and manage IS support as a resource of the business.
- Aligning IS costs with the benefits derived from IS.
- Motivating full and effective use of IS resources through demand-level pricing.
- Motivating usage of (limited) IS resources in directions which provide maximum strategic advantage for the firm.
- Providing a benchmark for comparison of internal service cost/quality to external providers of the same services.
- Providing a basis for make/buy or own/rent decisions on IS resources (hardware, telecommunications, software, staff, etc.).

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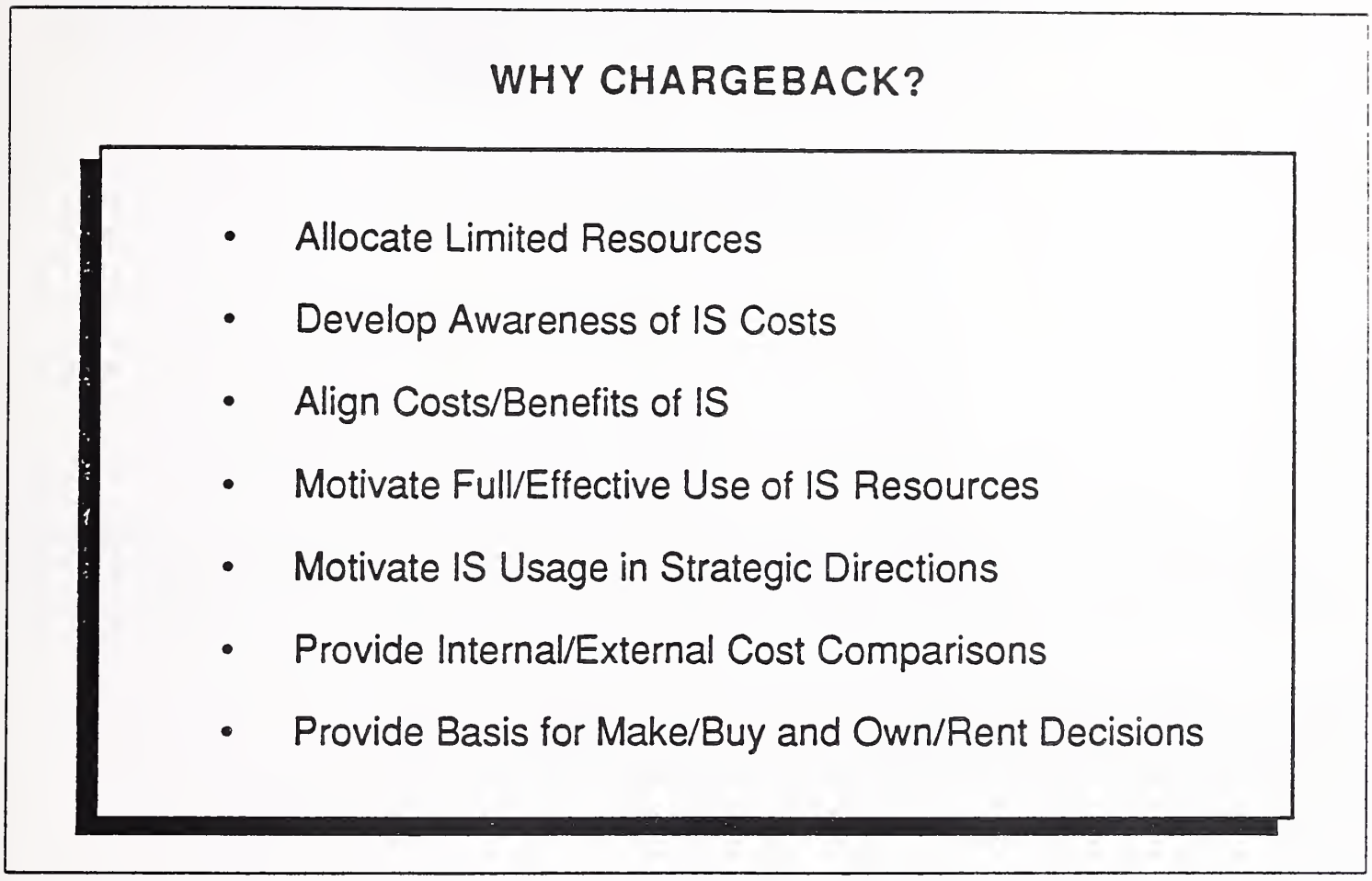
EXHIBIT V-6


WHY CHARGEBACK?
• Allocate Limited Resources
• Develop Awareness of IS Costs
• Align Costs/Benefits of IS
• Motivate Full/Effective Use of IS Resources
• Motivate IS Usage in Strategic Directions
• Provide Internal/External Cost Comparisons
• Provide Basis for Make/Buy and Own/Rent Decisions

3. How Do You Implement a Successful Chargeback System?

In a word, carefully...

The executives with long-established chargeback systems could not remember anything about the original problems of implementation. But those who are currently struggling with chargeback seem to have a common tale: "Nobody really wanted to do it, but someone (perhaps the accountants) said we had to, so we did it."

No objectives, no planning, and all at once–these three factors will guarantee a poor system. A phased implementation is critical to educating both users and management in the objectives and the process and gaining their acceptance of the system. Whether a firm is instituting chargeback for the first time or changing an existing system, a phased, incremental approach lets the firm gain experience with the system and fine-tune it to suit its own unique requirements. As with the prototyping approach to systems development, user feedback into the design process simplifies the design and facilitates implementation.

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The key to a successful implementation is best summarized by the "Tenth Commandment of Chargeback:" *"Above all be simple and equitable, create minimal overhead, and be consistent with both the objectives of management and the firm's other administrative processes."*

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Conclusions and Recommendations

A

Managing Information Services As a Business

In developing the objectives for a chargeback system, INPUT recommends that IS facilities be viewed as an ongoing business, with "sales" that vary over time and capital assets constituting a major component of the "production system."

A key principle of running a business is customer independence–the idea that a customer's costs and service levels should not be affected by the firm's dealings with other customers. Chargeback systems should be designed with this concept in mind.

This long-term view of IS resources requires that some items be treated as though they were capitalized and their lifetime costs recovered through usage-based, depreciation-like chargeback. This also implies that some IS resources will have their costs under-recovered in early years and over-recovered in later years, based on the proportion of capacity utilized. This view also implies that the "investment" in IS resources be viewed in the same manner as other corporate investments, with the standard corporate target hurdle rates, payback periods, etc. required for justification of incremental investments.

A "business view" of IS does not require these facilities to be considered "profit centers." Cost centers should also be run as businesses. The only real distinction between cost-centered and profit-centered businesses should be that cost center objectives involve meeting a set of cost recovery goals while profit center objectives involve meeting revenue and profit targets.

Essential elements of the business view are summarized in Exhibit VI-1:

- A clear, measurable set of objectives for the business.

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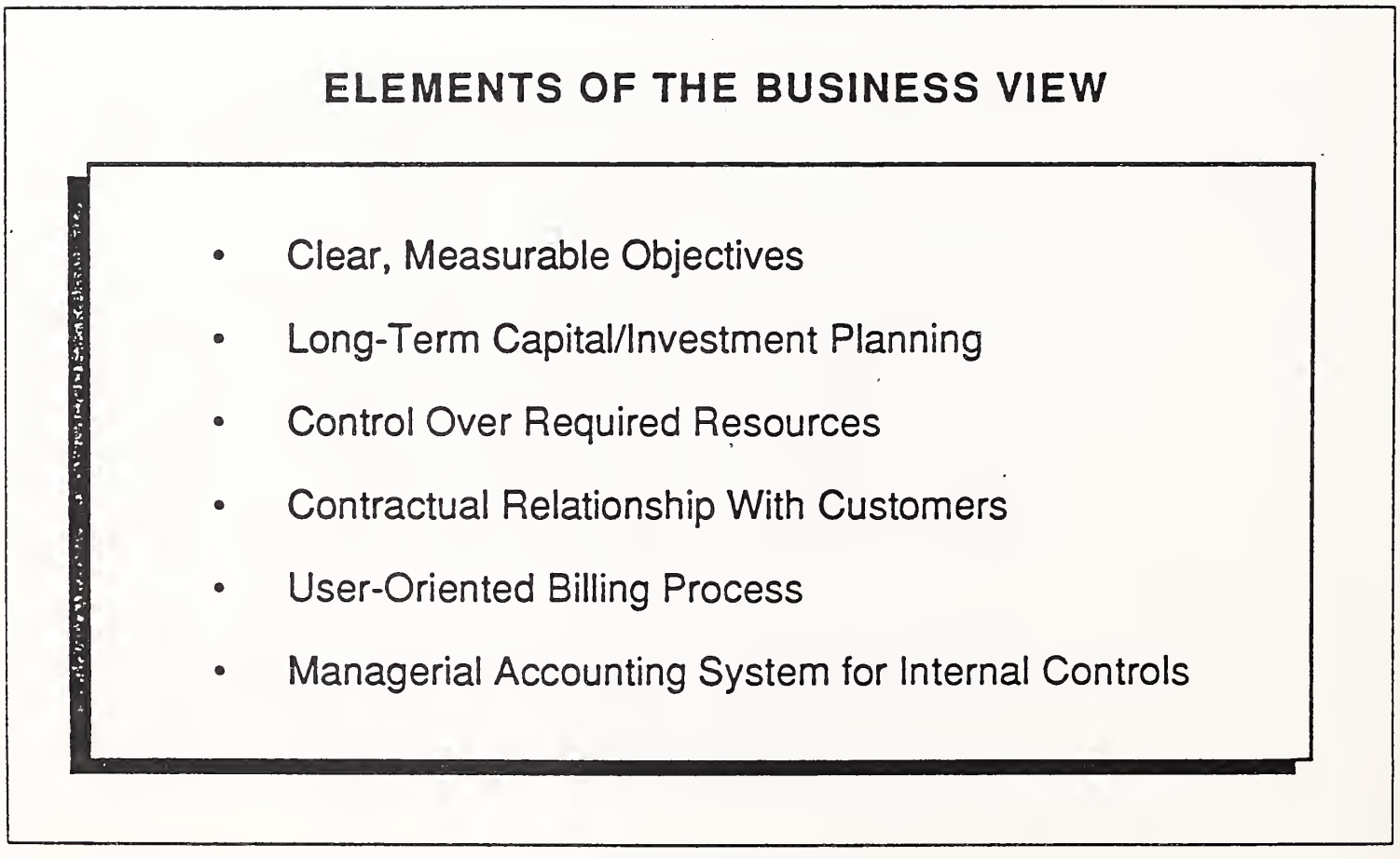
- A long-term investment plan and an accounting process that recognizes and amortizes capital investments.
- Clear authority for the business manager to acquire and control the resources needed to operate the business.
- A contractual relationship between the business and its customers, specifying cost, timing, quality, etc. of the services to be delivered.
- A process for charging customers which is based on actual services rendered at constant billing rates over the contract period and with rates structured in terms of the service that the customer receives (e.g., transactions processed, number of items in master file, reports printed, etc.)
- A Managerial Accounting system that allows performance to be tracked against objectives.

EXHIBIT VI-1


ELEMENTS OF THE BUSINESS VIEW
Clear, Measurable Objectives
Long-Term Capital/Investment Planning
Control Over Required Resources
Contractual Relationship With Customers
User-Oriented Billing Process
Managerial Accounting System for Internal Controls

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B

Developing a Chargeback System Model

In this report, INPUT has presented one example of a Chargeback System Model. This example includes:

- Three categories (and six subcategories) of system objectives.
- Seven types of facilities.
- Ten system design alternatives.

This model is detailed, comprehensive, and applicable to all types of chargeback systems, not just IS chargebacks. It forms the basis for the survey included in this report and is intended to cover most situations in almost any type of firm. Nevertheless, there will always be cases where this exact form of the model is not adequate for a given organization.

The key point made by this report is that some form of a model is necessary to understand and evaluate chargeback systems. INPUT's model should be critically analyzed and used as the basis for the organization's own specific IS model. It can also be used to compare chargeback policies for IS and other types of resources.

In developing a chargeback system model, there are three sets of questions that need to be answered:

- What are the objectives?
- Why are we doing this in the first place?
- How do we intend to use the system output?

These are organizational behavior questions, and the answers must be consistent with the firm's goals and culture/values.

- What types of facilities are to be covered by the system?
  - Different types of facilities may have different "ownership" characteristics (e.g., corporate data bases versus departmental processors and personal computers).
  - There may be different system objectives associated with each different type of facility.
  - Different facilities have different patterns of usage and inherently different abilities to provide detailed usage statistics for cost allocation.
- What are the variables that can be manipulated to provide different patterns of chargeback?

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There are two levels at which the system must be consistent:

- At a macro level, the system must support corporate values and match other corporate systems.
- At a micro level, the system's parameters must be logically consistent within each facility type and across facility types.

The Chargeback System Summary Worksheet presented in Exhibit IV-1 provides a good means to review micro level system consistency. Similar worksheets could be used to compare the design of the IS chargeback system with other corporate chargeback systems. Specific rules for micro level consistency are presented in Section VI D, below.

C

General Recommendations for Design of Chargeback systems

These recommendations are based on the results of interviews conducted as part of this report as well as the professional experience of INPUT staff and managers. Although we recognize that everyone may not agree with these ideas, the presentation of our opinions and the underlying reasoning should prove valuable to others who have to make these decisions for themselves.

INPUT believes that Management Responsibility accounting is a valuable corporate discipline and that firms should seek to develop a comprehensive set of MR systems. IS chargeback is just one of the components of such a corporate system.

INPUT also believes that MR accounting should be applied at the lowest possible levels in the firm. Ideally, anyone who has a responsibility for acquiring. allocating, and managing resources should be viewed as a Responsibility Center, and that person's activities should be summarized in an MR accounting format.

To be effective, chargeback systems must be consistent not only with explicitly chosen system objectives, but also with the other corporate administrative systems. In particular, the decision of whether to include administrative and overhead costs in the IS chargeback system should be consistent with the approach used in the firm's other chargeback systems.

If a company does little transfer pricing or chargeback of non-IS resources, it should not develop elaborate IS chargeback schemes.

Chargeback should be done in units which are meaningful to users (e.g., transactions processed), not in machine units. This may require that systems and applications programs be modified to collect operating statistics for use by the Chargeback Systems.

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The level of precision and detail should be appropriate to the uses and users of the data. Particular attention should be paid to the cost of collecting and processing chargeback data versus the value received from that data.

The information should be organized and presented in a way which facilitates its use and understanding and is consistent with the firm's other administrative systems and reports.

Everyone affected by a chargeback system should be informed of the company's objectives in establishing the system. People should also understand the parameters of the system and the rationale behind the choice of specific parameter values.

Management should strongly endorse its chargeback systems and encourage the use of their output. Chargeback systems will generally be ignored if they fail to provide relevant and actionable data which has formal institutional sanction.

Chargeback systems should be coupled with performance monitoring systems of the charging facility as well as the user facility. Once good chargeback and performance monitoring systems are in place, they should be coupled with user service level agreements and used to provide service level reporting. In situations where chargebacks are an important part of Management Responsibility accounting, firms should consider using output-based chargeback (Design Alternative 5), with charges being reduced whenever the facility does not meet the performance specified in the service level agreement.

D

Recommendations for Internal Consistency in the Model

The discussion below is organized by Design Alternative (1-10). Issues that relate to two design alternatives are covered under the first alternative in the list. The discussion below assumes that the decision to chargeback a given type of facility has already been made.

1. Cost Categories

The combination of direct and overhead costs should include all items which are required for the facility to generate its output:

- Labor costs should include all fringe expense (taxes and benefits), unless these are normally included in the firm's overhead (an undesirable option, in INPUT's view).

- Equipment costs should include charges for rental/lease and depreciation, as applicable. Equipment maintenance/service contracts should also be included, as should lease charges for operating system software.

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- Utility services such as heat, light, telephone, and space should be included as well. Since many of these overhead costs may be transferred to IS facilities from other areas of the firm (e.g., the premises department), it is important that they are treated consistently throughout the firm.

Direct and overhead costs should be fully charged out somewhere. This could include charges to corporate accounts that are treated as overhead/ administrative expense if there is a measurable amount of usage by corporate functions/departments.

There is no reason to recover only a fraction of a facility's costs; this results in misleading numbers which are not comparable to anything.

2. Charge Basis

Charging should be done on the basis of (fixed) budgeted rates established during the annual planning cycle. This way, users can determine what their costs will be as their business changes. Actual cost reimbursement should be avoided in any Management Responsibility reporting system, as it makes costs both unpredictable and subject to the actions of other users.

In those cases where regulatory requirements dictate that accounting be done on an actual cost basis, it is strongly recommended that two parallel chargeback systems be developed –one for MR reporting and one for legal/ regulatory reporting.

3. Costing

Within any one category of facility or service, charging should generally be done on a utility basis — i.e., equal charges for equivalent service, with no variance for the difference in costs associated with serving different locations. The overhead associated with determining location dependent cost differences and establishing separate billing rates is not worth the effort, and creates counterproductive arguments about the "fairness" of the system.

Even in the case of specific, dedicated communications facilities that may be required, e.g., to link a remote office to the headquarters computer, it can be counterproductive to charge the office with the actual cost of the leased lines. If the remote office is a profit center (e.g., as in a brokerage firm), its profits can be affected by changes in communications tariffs. Also, offices close to headquarters will have lower costs (and higher profits) due strictly to their location.

Other than communications, there are generally few location dependent cost differences in the provision of IS services. Most large companies manage their own internal communications networks, and specific deci-

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sions on how each location is served are dependent on the overall network plan, which the individual user has no control over.

4. Demand-Level Pricing

Demand-level pricing can be a valuable tool for IS capacity management. It should be employed wherever there are significant timing differences in the workload and the workload can be shifted by the user. However, this does not justify the use of technical/resource-oriented usage rates in place of user-oriented transactional or work unit rates.

One good way to apply the demand-level pricing concept is to negotiate (at budget time) service costs that depend on the constraints the user places on the timing of the output, or the required turnaround time for specific requests. For example, an IS manager could say that a report which must be delivered by 8:00 A.M. will cost $0.25/account, whereas the same report delivered by afternoon will cost $0.10/account. On-line processing could be made cheaper on second and third shifts (e.g., $0.25/transaction in prime time versus $0.10/transaction in off-shift periods), giving a user the option of offsetting night-shift salary differentials for data entry staff with lower costs for their computer usage.

Applications which must return an answer on-line could be charged one price, whereas the same information/processing requested within two hours might be charged at 40% of the on-line price and overnight turnaround charged at 15% of the on-line price. Turnaround times for any type of service request can be handled this way, even crash projects that disrupt the development group's plans and other commitments or require outside support to complete.

In some areas, such as timesharing, it is difficult to get away from using technical/resource usage units for billing. In such cases, the billing algorithms should be made as straightforward as possible and the user should ideally be given a statement of what each session has cost as he is logging off. Users should also be encouraged to find ways of deferring their processing through such mechanisms as batch job submission, delayed printing, etc., and should be made aware of how much they can save by doing this.

Obviously, demand-level pricing has its greatest impact in situations where the user has strong cost-control motivations. If the user is not accountable for IS resource usage, he will not care what the charges are and the effort will have little value.

5. Distribution of Charges

Wherever feasible, charges should be based on usage rather than simply allocated. In the early stages of implementing a chargeback system, when

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it is not feasible to determine usage and develop usage-based rates, an allocation system is better than nothing. However, it should be moved as fast as possible to a usage basis.

Two related defects of allocation are its fairness and its responsiveness to changes in the business environment. On one hand, a user who consumes less of the IS resource than planned doesn't get a reduction in costs. On the other hand, the user who exceeds planned usage, either through changes in the business or poor management, does not bear a proportionate share of the IS costs. Allocation is simply not an appropriate tool for making the user responsible for his/her costs.

6. Chargeback Timing

IS Chargebacks should operate on the same time cycle as the firm's other expense reporting systems. Generally this is monthly. It may also be desirable to provide a weekly usage summary to managers of large projects or operations areas so that they can investigate and correct anomalies in usage data and more effectively control their IS resource usage.

7. Year-End Recovery Adjustments

As with parameter #2 (Budgeted vs. Actual cost), it is not appropriate to make year-end adjustments in users' charges, except where required in a separate regulatory accounting system.

8. Cost Center Versus Profit Center

The proper approach to the cost versus profit center issue depends on the firm's culture and its objectives for the IS organization. However, the more important issue is to ensure that IS is run "as a business" (see Section A of this Chapter).

If the firm has the following characteristics, INPUT would say that a profit center approach is acceptable:

- A large number of market-defined (e.g., by product) profit centers.
- A strong emphasis on treating support functions as profit centers.
- The opportunity for users to go outside the firm for IS resources.

Otherwise, it is generally best to use a cost center concept. A cost center concept will tend to produce less friction between users and IS management because the user does not see IS management as a profitability competitor. In a cost center, the goal of the unit is maximizing service at an agreed-upon cost. On the other hand, if one profit center buys from

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another, they are engaged in a zero-sum game of allocating profits between themselves.

9. Substitutability of Outside Resources

This is generally not an issue over which management has much control. The most common barriers to exporting work from the firm are:

- Security/controls.
- Communications.
- Availability of software.
- Availability of data.

Some things are easily transferrable to the outside, such as timesharing applications that use standard data and software, word processing, etc. In other cases, it is not economically feasible to provide the security, etc. necessary to export the work on a sustained basis.

This issue has broader implications than chargeback, however. These same questions pertain to system backup and disaster recovery. If there are technological barriers to the user going outside on his own, it is likely that the application will be difficult to back up in case of emergency. Helping the user analyze the feasibility of exporting his work is a good exercise in contingency planning.

10. Policy on Allowing Usage of Substitute Outside Resources

Within certain prescribed limits, INPUT believes that users should be able to utilize outside resources if they chose to do so. This is consistent with the philosophy that users should accept cost responsibility and exert significant control over their IS resource utilization. If the user can demonstrate that there are no significant risks to going outside and believes that he may thereby receive lower costs or better service, he should be allowed to do so. Before doing so, however, the user should negotiate the issue with the internal service provider that is being displaced. And except for short term or emergency situations, the decision should carefully consider the long run total costs of the alternatives.

The most difficult issue will often be price: "I can get it cheaper outside." If this is the case, there are several key questions to ask:

- Is the price difference due to high internal overhead costs included in the chargeback, or does the outside firm have a true cost advantage?

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- If the work is shifted outside, will it reduce the firm's operating costs, or simply result in spreading less work over the same cost base?

Unless there are real cost savings to the firm from going outside, the difference between chargeback rates and external prices should be ignored.

As a rule, it is better to shift work involving declining technologies to outside firms while retaining internal control over advanced technologies. For example, keypunching and key-to-tape data entry for older applications would likely be cheaper outside and would eliminate the need to maintain staff, supervision, maintenance, etc. in support of a small amount of obsolete or low-utilization equipment. Maintenance of old applications might similarly be contracted out, while utilizing internal staff to develop new applications.

Again, this decision provides an opportunity to review backup procedures and determine their adequacy. If an application is exported and the service provider has a failure, it may be much more difficult to recover than if the application were being performed in-house. This point is relevant to all categories of IS facilities: the failure of a software house which is developing a new program, a disk crash on a timesharing vendor's machine, and the loss of documents en route to a data entry firm all provide potential backup/recovery problems which might have been avoided if the work were retained in house.

E

Summary

The above recommendations are based on the experience of both senior IS executives and INPUT's professional staff. While this study involved a small number of interviews, the in-depth discussions provided many insights with broad applicability to all IS organizations.

Implementing a good chargeback system is hard work. It takes time and requires dedication to a clear set of objectives. It also requires a management style that makes effective use of the data. Careful planning and a phased approach to implementation are equally important to ensuring that chargeback is an effective IS management tool.

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